

REMARKS

In view of the above amendments and following remarks, reconsideration of the rejections contained in the final Office Action of June 14, 2005 is respectfully requested.

A Request for Continued Examination has now been filed with this Amendment. Accordingly, the above amendments should be entered and considered as a matter of right.

The Examiner has now rejected claims 28-48 and 53-56 as being unpatentable over von Gutfeld, U.S. Patent 6,055,156, in view of Akiyama et al. (Akiyama), U.S. Patent 5,170,195. However, it is respectfully submitted that no proper combination of these references can result in the presently claimed invention.

The Present Invention

As has been thoroughly discussed in previous submissions, the present invention is directed to a computer comprising a casing having a display which is bordered by a frame. Computers of this kind are generally used in surroundings that have ambient conditions detrimental to the operation of the electronic components of the computer. Thus the sealing integrity of the casing is important, which leads to the problem of heat dissipation from the operation of the electronic components. Passive heat exchangers are often inadequate, and thus active water cooling systems are generally used. This, however, requires a large external cooling body serving as a heat exchanger and disadvantageously increases the amount of space required for the computer. Further, external connections for the supply and discharge of water involves the risk of water escaping.

Thus the present invention resolves these problems of the prior art by providing a computer that comprises a casing having a display bordered by a frame wherein the frame has a passage arranged therein with a cooling fluid in the passage. The frame itself forms the passage for the cooling fluid.

Further, a fluid-conducting communication is provided between the passage and at least one electronic component, with the electronic component being provided inside of the casing.

Noting the specification, housing 1 of an industrial computer 16 has a display 4 bordered by a frame 2. A cooling passage 5 is provided in the frame 2 of the housing or casing 1. The cooling

passage 5 is formed by the frame 2 itself. Electronic components 10 are provided on the interior 18 of the casing, which electronic components 10 may include the CPU of the computer. Fluid conducting communication 13 is provided between the passage 5 and the electronic component 10.

Thus, it may be seen that the present invention enables a computer to be provided with a casing having a frame surrounding the display for an industrial environment. The problems with the prior art are resolved by providing a cooling fluid passage in the frame itself, by providing the electronic component inside of the casing, and providing the fluid-conducting communication between the passage and the electronic component. These aspects are reflected by independent claims 28 and 53. Both of the independent claims clearly distinguish over the prior art cited by the Examiner.

The References Cited by the Examiner Cannot Be Combined to Meet the Present Invention

Von Gutfeld is directed to a case for portable computers for enhanced heat dissipation. It is provided so as to be shaped to provide cooling of the computer's electronic parts. It includes ribs, corrugations, slots and a plate attached to the bottom of the case by angled edges to allow a gap between the plate and the case bottom to trap a heat insulating gas. As can be seen from the Summary of the Invention, the case of von Gutfeld is directed toward a laptop casing, primarily, to simply and inexpensively enhance heat dissipation to the ambient atmosphere.

Von Gutfeld thus involves various concepts including a ribbed structure, selective positioning of the microprocessor in close proximity to one of the four sides of the case, which side has small openings, and employing a thin plate to form a gap occupied by a heat insulating gas.

Thus it seems clear that von Gutfeld, in the first instance, bears little relation to the present invention. In fact, von Gutfeld does not address the limitation of a display being bordered by a frame as required by claims 28 and 53, a passage arranged in the frame having a cooling fluid in the passage, and the frame itself forming the passage for the cooling fluid.

Contrary to the position of the Examiner, there is no frame 2 disclosed bordering the display 3. Reference number 2 refers to the ribs, which do not border the display 3. Rather, "the display 3 . . . [is] extended to cover the top . . . of ribs 2." Note column 3, lines 33-35 of von Gutfeld. Ribs

2b do not form a border for or surround display 3. Rather, they surround the central casing portion of the computer of von Gutfeld. The Examiner's assertion that the ribs 2 of von Gutfeld are somehow a frame for the display is not understood. The ribs 2 are in fact below the display screen. The entire arrangement has nothing to do with the present application as presented in claims 28 and 53. Von Gutfeld is simply directed toward providing air convection.

The Examiner asserts that Akiyama teaches providing a display frame 12a. This is incorrect. The display of Akiyama is a liquid crystal panel 40 that is mounted on a container 12. The surrounding wall 12a to which the Examiner refers surrounds the container 12, and not the display 40. This is clearly seen from Fig. 2.

The Examiner refers to the frame having a passage 18 arranged therein with a cooling liquid 40 in the passage. Passage 18 refers to the second embodiment of Fig. 3, and the passages 18 include ascending and descending flows 15 and 16 on either side of the container 12. Reference number 40 in Akiyama is a liquid crystal panel, however, and not a cooling fluid; the coolant is reference number 14.

The passages 18 to which the Examiner refers are provided in the container 12, surrounded by its outside wall 12a, as shown in Fig. 4. However, as noted above, 12a is not a frame bordering or surrounding the display. Thus Akiyama does not relate to the present invention as claimed.

The Examiner recites a fluid-conducting communication provided between passage 18 and an electronic component 30-40. However, The electronic component 30-40 is a reference to the polarizing plate 30 and the liquid crystal panel 40, both of which are on the outside of container 12. Thus there is no fluid communication therebetween.

The Examiner takes the position that it would have been obvious to one of ordinary skill in the art to provide the "frame" of von Gutfeld with an alternate means of cooling electronic components, such as via fluid passages within a frame, as taught by Akiyama, since the device of Akiyama would provide a more efficient and enhanced means of cooling electronic components in the computer of von Gutfeld. However, this conclusion by the Examiner is without any basis and evidence from the cited references.

The Examiner has not pointed to any indication anywhere in either reference that trying to somehow adapt the liquid crystal display of Akiyama to the computer casing of von Gutfeld would enhance the cooling of the computer of von Gutfeld. Thus there is no evidence to support the Examiner's proposition that Akiyama would provide a more efficient and enhanced means of cooling electronic components, than that already proposed by von Gutfeld.

Further, von Gutfeld seems to be particularly teaching away from the type of arrangement that the Examiner is suggesting. Noting the description of related art in column 1 of von Gutfeld, there is a discussion that the use of heat pipes is relatively costly, especially when placed within the electronic component part of the case. It is further an object of von Gutfeld to simply and inexpensively dissipate heat to the ambient atmosphere. It is noteworthy that the solution of von Gutfeld involves the concepts of ribs, selective positioning of the microprocessor near holes in the casing and an insulating air layer. These are all relatively simple modifications that do not involve the use of liquid as in Akiyama.

The object of the invention of Akiyama is to provide a cooling device that can effectively cool a liquid crystal panel with cooling liquid. It is not directed to cooling a computer, or electronic components within a computer. It would not have suggested itself to one of ordinary skill in the art in addressing such a problem. Particularly note that Akiyama is directed to a liquid crystal panel typically used in a liquid crystal projector. Akiyama is clearly addressing problems that would be found in cooling such a panel as employed with a projector. This is quite different from the environment of a laptop computer, however, in which the display does not ordinarily require light to be projected through it.

It would not have been obvious to one of ordinary skill in the art to take the somewhat bulky cooling arrangement of Akiyama and place it on a computer display of a laptop computer as in von Gutfeld. If one of ordinary skill in the art were in fact looking to improve the cooling of a laptop display, they might adopt the improvements of von Gutfeld. But clearly they would not look to Akiyama.

It must again be most strongly emphasized that neither Akiyama nor von Gutfeld has a frame which itself forms a passage for cooling fluid, which frame borders or surrounds the display as

required by claims 28 and 53, respectively. Thus even if combined by the Examiner, the limitations of the claims are not met.

The various dependent claims even further distinguish the present invention over the references that have been cited by the Examiner. Specific discussions of these further distinctions does not appear to be necessary in view of the fact that the primary references cited by the Examiner and applied to the independent claims fail to present a *prima facie* case of obviousness. Nonetheless, it should be noted that Applicant reserves all his rights to address the various objections and positions taken by the Examiner with respect to the various dependent claims.

Conclusion

By the above it is clear that the Examiner has failed to establish a *prima facie* case of obviousness with respect to independent claims 28 and 53. Von Gutfeld and Akiyama clearly cannot be combined in any manner so as to meet the limitations of these independent claims. Accordingly, withdrawal of all rejections is requested.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance, and the Examiner is requested to pass the case to issue. If the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact Applicant's undersigned representative.

Respectfully submitted,

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